

## I. PROJECT DESCRIPTION

GENERAL PORTIONS OF THE PROJECT INVOLVE THE RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF MD 22 (ABERDEEN THRUWAY) AND MD 132B (OLD POST RD / POST RD) IN THE TOWN OF ABERDEEN, HARFORD COUNTY.

ALL EXISTING POLES AND SIGNAL EQUIPMENT ARE TO BE REMOVED AND NEW POLES AND SIGNAL EQUIPMENT ARE TO BE CONSTRUCTED AS PART OF THE MD 22 ROADWAY WIDENING/ IMPROVEMENT PROJECT. THE EASTBOUND MD 22 LEFT TURN IS TO BE UPGRADED TO A DUAL LEFT TURN AS PART OF THE ROADWAY WIDENING. VIDEO DETECTION IS TO BE USED ON THE SIDE STREETS AND MD 22 LEFT TURNS. ADVANCE DETECTION ON MD 22 SHALL BE REPLACED WITH NON-INVASIVE MICRO-LOOP PROBES. EXISTING PEDESTRIAN EQUIPMENT IS TO BE REPLACED WITH LED COUNTDOWN SIGNALS AND APS PUSHBUTTONS TO CROSS THE NORTH AND EAST LEGS OF THE INTERSECTION. MD 22 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

### INTERSECTION OPERATION

THE INTERSECTION OPERATES IN NEMA 8 PHASES. THE EASTBOUND AND WESTBOUND APPROACHES HAVE EXCLUSIVE-ONLY LEFT TURN PHASES. THE NORTHBOUND AND SOUTHBOUND APPROACHES HAVE PROTECTED-PERMISSIVE LEFT TURN PHASES. THE EASTBOUND AND WESTBOUND THROUGH MOVEMENTS OPERATE CONCURRENTLY, AND THE NORTHBOUND AND SOUTHBOUND THROUGH MOVEMENTS OPERATE CONCURRENTLY. THE NORTH AND EAST LEGS OF THE INTERSECTION HAVE ACTUATED PEDESTRIAN PHASES.

A NEMA EIGHT-PHASE, FULL-ACTUATED CONTROLLER WITH VIDEO DETECTOR INTERFACE UNIT, 2-WIRE CENTRAL CONTROL UNIT, UPS BATTERY BACKUP, AND ALL OTHER NECESSARY. EQUIPMENT HOUSED IN A NEMA SIZE "S" BASE-MOUNTED CABINET SHALL BE INSTALLED AT THE INTERSECTION.

## II. PROJECT CONTACTS

### OFFICE OF TRAFFIC AND SAFETY

MS. CORREN JOHNSON  
CHIEF, TRAFFIC OPERATIONS  
410-787-7630

VACANT  
ASSISTANT DIVISION CHIEF, TRAFFIC OPERATIONS  
410-787-7630

MR. EDWARD RODENHIZER  
CHIEF, SIGNAL OPERATIONS SECTION  
410-787-7650

MR. EUGENE BAILEY  
CHIEF, SIGN OPERATIONS SECTION  
410-787-7650

MR. MICHAEL STOCKER  
SUPPLY OFFICER IV (SIGNAL SHOP WAREHOUSE)  
410-787-7696

### DISTRICT (DISTRICT 4)

MR. DAVID PEAKE  
DISTRICT ENGINEER  
410-229-2310/2311

MS. ERIN KUHN  
ASSISTANT DISTRICT ENGINEER - TRAFFIC  
410-229-2381

MR. MICHAEL PASQUARIELLO  
DISTRICT UTILITY ENGINEER  
410-229-2341

VACANT  
ASSISTANT DISTRICT ENGINEER - CONSTRUCTION  
410-229-2421

MR. ANDRE FUTRELL  
ASSISTANT DISTRICT ENGINEER - MAINTENANCE  
410-229-2361

## EQUIPMENT LIST

### A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

CATEGORY CODE	QTY	UNITS	DESCRIPTION
900000	1	EA	CONTROLLER CABINET, SIZE "S" W/ CTRL, VIDEO INT, 1-8 CAM, UPS UNIT
900000	155	SF	SHEET ALUMINUM MAST ARM / POLE MOUNTED SIGNS
			2 EA R3-5(L) (30"x36")
			2 EA R3-5(R) (30"x36")
			2 EA M1-5(6) (36"x72")
			2 EA M1-5(6) (24"x48")
			1 EA W9-2L (36"x36")
			2 EA D-3(2) ABERDEEN TRWY (VARX16") - DUAL FACED
			2 EA D-3(1) OLD POST RD / POST RD (VARX32") - DUAL FACED

### B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

CATEGORY CODE	QTY	UNITS	DESCRIPTION
203030	8	CY	TEST PIT EXCAVATION
585412	530	LF	12 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
585424	200	LF	24 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
800000	1	EA	2 WIRE APS CENTRAL CONTROL UNIT
800000	4	EA	AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION AND SIGN
800000	4	EA	LED 16 INCH COUNTDOWN PEDESTRIAN HEADS
800000	8	EA	IP BASED VIDEO DETECTION CAMERA AND ANY LENGTH CABLE
800000	2	EA	LED LAMP & LUMINARIE
800000	1	LS	REMOVE AND DISPOSE OF EXISTING SIGNAL EQUIPMENT
801004	25	CY	CONCRETE FOR SIGNAL FOUNDATION
802501	700	LF	NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
805118	370	LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT- BORED
805125	245	LF	2 INCH SCHEDULE 80 RIGID PVC CONDUIT- TRENCHED
805135	940	LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT- TRENCHED
805140	110	LF	4 INCH SCHEDULE 80 RIGID PVC CONDUIT- TRENCHED
805150	170	LF	3 INCH SCHEDULE 80 RIGID PVC CONDUIT- SLOTTED
807500	1	EA	EMBEDDED METERED SERVICE PEDESTAL
310019	460	LF	ELECTRICAL CABLE 3-CONDUCTOR NO. 12 AWG COPPER TYPE T/C
810022	30	LF	ELECTRICAL CABLE 1-CONDUCTOR NO. 8 AWG-THHN/THWN
810605	6	EA	NONINVASIVE DETECTOR, 1000 FOOT LEAD IN CABLE
811001	11	EA	FURNISH AND INSTALL ELECTRICAL HANDHOLE
813015	155	SF	INSTALL OVERHEAD SIGN
818004	3	EA	10 FOOT BREAKAWAY PEDESTAL POLE
818036	1	EA	STEEL POLE WITH SINGLE 50 FOOT MAST ARM
818041	1	EA	STEEL POLE WITH SINGLE 60 FOOT MAST ARM
818052	2	EA	STEEL POLE WITH SINGLE 70 FOOT MAST ARM
837001	8	EA	GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
860284	53	EA	12 INCH LED VEHICULAR TRAFFIC SIGNAL HEAD SECTION
860292	1	EA	CUT, CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
861105	1,030	LF	ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)
861107	1,130	LF	ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
861108	3,270	LF	ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
866104	2	EA	20 FOOT LIGHTING ARM ON SIGNAL STRUCTURE
871202	1	EA	INSTALL CONTROLLER AND CABINET - BASE MOUNT

### C. SHA FORCES SHALL REMOVE THE CONTROLLER AND AUXILIARY EQUIPMENT FROM THE CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.



THE CONTRACTOR SHALL COORDINATE TRAFFIC SIGNAL INSTALLATION WITH THE PROPOSED MAINTENANCE OF TRAFFIC PHASES. SEE DRAWING MT-01 FOR SUGGESTED SEQUENCING OF CONSTRUCTION AND TEMPORARY SIGNAL REQUIREMENT RELOCATION INFORMATION.

ADDENDUM NO. 1  
REVISED TRAFFIC SIGNAL PLAN  
8/8/2013

## III. SPECIAL NOTES:

### 1. APS WILL FUNCTION AS FOLLOWS:

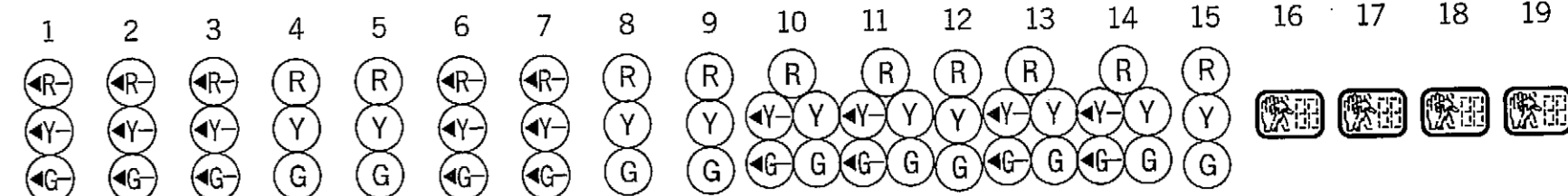
- TO CROSS MD 22 (ABERDEEN THRUWAY)
- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON MESSAGE WILL BE "WAIT TO CROSS ABERDEEN AT OLD POST."
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

- TO CROSS OLD POST ROAD
- A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON MESSAGE WILL BE "WAIT TO CROSS OLD POST AT ABERDEEN."
- B. WHEN WALK PHASE BEGINS, THE MESSAGE WILL BE A RAPID TICK WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

2. THE CONTRACTOR SHALL PURCHASE AND DELIVER THE 2-WIRE CENTRAL CONTROL UNIT FOR THE CONTROLLER TO SHA SIGNAL SHOP, AT 7491 CONNELLY ROAD, HANDOVER, MD 21076. MR. EDWARD RODENHIZER AT 410-787-7652 SHALL BE CONTACTED AT LEAST 3 DAYS PRIOR TO THE DELIVERY.

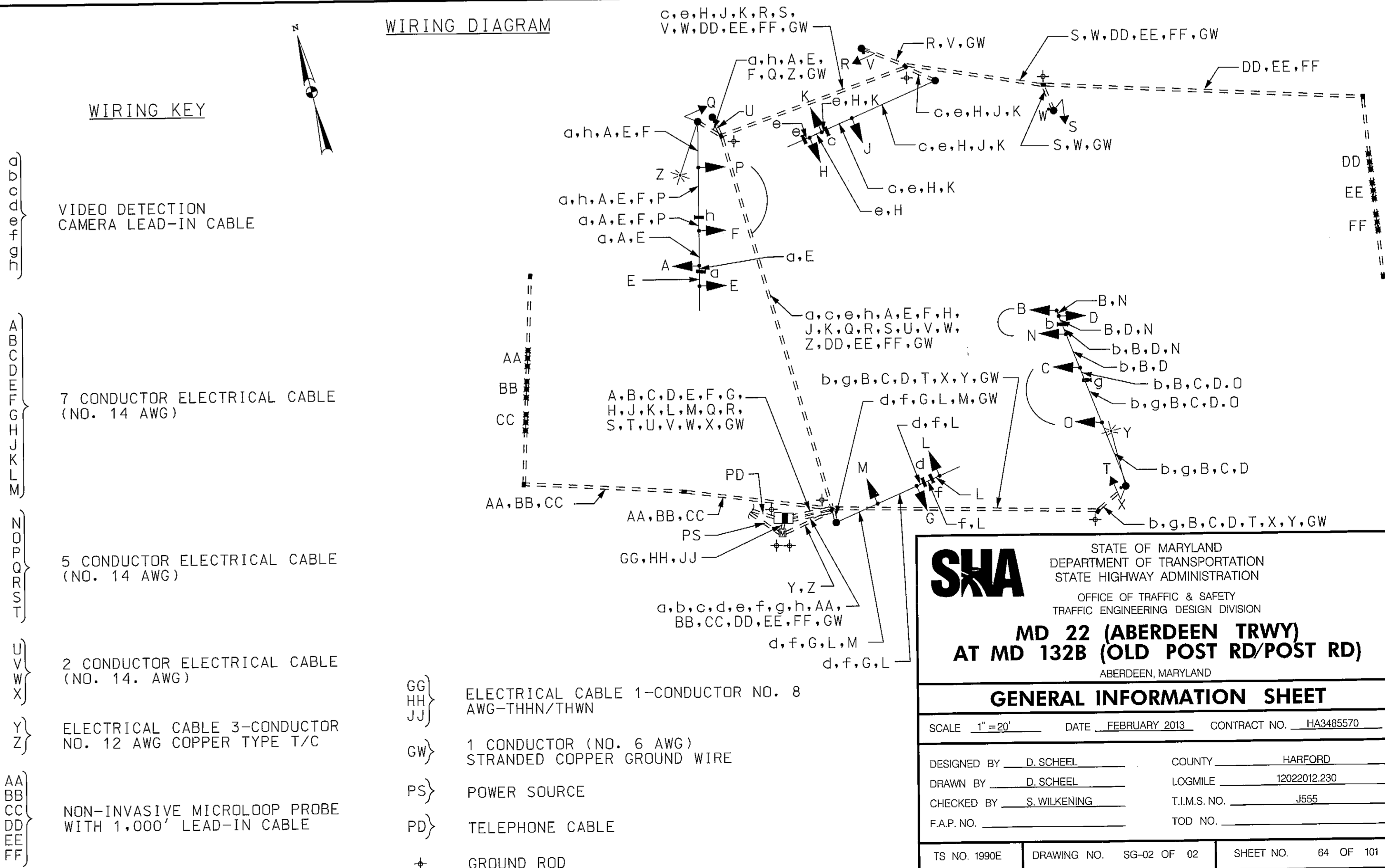
3. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL NOTIFY SHA TO ARRANGE FOR THE PHONE LINE INSTALLATION. THE CONTRACTOR SHALL PROVIDE SHA WITH THE NEAREST STREET ADDRESS, ZIP CODE, AND TELEPHONE NUMBER.

## PHASE DIAGRAM



PHASE 1 AND 5	←G-	←G-	←G-	R	R	←G-	←G-	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6																				
PHASE 1 AND 6	←G-	←G-	←G-	G	G	←R-	←R-	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
1 CHANGE	←Y-	←Y-	←Y-	Y	Y	←R-	←R-	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 2 AND 5	←R-	←R-	←R-	R	R	←G-	←G-	G	G	R	R	R	R	R	R	R	DW	DW	DW	DW
5 CHANGE	←R-	←R-	←R-	R	R	←Y-	←Y-	Y	Y	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 2 AND 6	←R-	←R-	←R-	G	G	←R-	←R-	G	G	R	R	R	R	R	R	R	WK	WK	DW	DW
PED CLEARANCE	←R-	←R-	←R-	G	G	←R-	←R-	G	G	R	R	R	R	R	R	R	FLDW	FLDW	DW	DW
2 AND 6 CHANGE	←R-	←R-	←R-	Y	Y	←R-	←R-	Y	Y	R	R	R	R	R	R	R	DW	DW	DW	DW
PHASE 3 AND 7	←R-	←R-	←R-	R	R	←R-	←R-	R	R	←RG	←RG	R	←RG	←RG	R	DW	DW	DW	DW	
3 AND 7 CHANGE TO 3 AND 8, 4 AND 7, OR 4 AND 8																				
PHASE 3 AND 8	←R-	←R-	←R-	R	R	←R-	←R-	R	R	←GG	←GG	G	R	R	R	R	DW	DW	DW	DW
3 CHANGE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	←YG	←YG	G	R	R	R	R	DW	DW	DW	DW
PHASE 4 AND 7	←R-	←R-	←R-	R	R	←R-	←R-	R	R	R	R	R	←GG	←GG	G	DW	DW	DW	DW	
7 CHANGE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	R	R	R	←YG	←YG	G	DW	DW	DW	DW	
PHASE 4 AND 8	←R-	←R-	←R-	R	R	←R-	←R-	R	R	G	G	G	G	G	G	G	DW	DW	DW	DW
4 AND 8 CHANGE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	Y	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW
PHASE 4 AND 8 ALT	←R-	←R-	←R-	R	R	←R-	←R-	R	R	G	G	G	G	G	G	G	DW	DW	WK	WK
PED CLEARANCE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	G	G	G	G	G	G	G	DW	DW	FLDW	FLDW
4 AND 8 ALT CHANGE	←R-	←R-	←R-	R	R	←R-	←R-	R	R	Y	Y	Y	Y	Y	Y	Y	DW	DW	DW	DW
FLASHING OPERATION	FL/R	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	FL/R	DARK	DARK	DARK	DARK

## WIRING DIAGRAM



STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION  
**MD 22 (ABERDEEN TRWY)  
AT MD 132B (OLD POST RD/POST RD)**  
ABERDEEN, MARYLAND

## GENERAL INFORMATION SHEET

SCALE 1"=20'	DATE FEBRUARY 2013	CONTRACT NO. HA3485570
DESIGNED BY D. SCHEEL	COUNTY HARFORD	
DRAWN BY D. SCHEEL	LOGMILE 12022012.230	
CHECKED BY S. WILKENING	T.I.M.S. NO. J555	
F.A.P. NO.	TOD NO.	
TS NO. 1990E	DRAWING NO. SG-02 OF 02	SHEET NO. 64 OF 101